

## AMENDMENT

Attorney's Docket No. 21-1203

Appln. No. 09/020,120

Filed: February 6, 1998

For: SYSTEM FOR MERCHANDISE ORDERING AND ORDER FULFILMENT

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims** (deleted text being struck through and added text being underlined):

1. (Previously Presented) A system for interactive transfer of inventory information in a product storage space, said system comprising: a directing station, a base station and a portable station;

a first transceiver means in said base station and a second transceiver means in said portable station for wirelessly transmitting signals therebetween, said wireless signal transmission between said first and second transceiver means including DTMF-encoded data signals and DTMF-encoded command signals and spoken command signals; said directing station comprising

database means for storing product-related information and customer-related information, said database means including order fulfillment information and product location information;

directing means for determining an order fulfillment path through said product storage space based upon order fulfillment information and product location information stored in said database means for a product storage space, said order fulfillment path including a sequence of person movement instructions for directing person movements between product storage locations in said product storage space for permitting an efficient assembly of products to fulfill a customer order, said directing means passing said person movement instructions to the first transceiver means for transmission to said second transceiver means of said portable station;

a processing means for facilitating transfer of data between said first transceiver means, said database means, and said directing

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means;

said base station comprising

voice recognition means for identifying spoken command signals received from said portable station and converting said spoken command signals into predetermined computer command codes corresponding to the spoken command signals, wherein said voice recognition means transfers said predetermined computer command codes to said directing station;

voice generation means for converting predetermined computer command codes received from said directing means into corresponding electronic sound signals for producing sounds corresponding to spoken commands, wherein said voice generation means transfers said electronic sound signals to said portable station;

a first translating means for translating DTMF-encoded transfer signals from said portable station into predetermined computer command codes, wherein said first translating means transfers said predetermined computer command codes to said directing station;

a computer command code database accessible by said first translating means and said voice generation means for providing predetermined computer command codes; and

said portable station being adapted for use remotely from said base station, said portable station being movable about a product storage space, said portable station comprising:

scanning means for scanning bar code indicia on a product, said scanning means being adapted to produce digital data signals based upon the bar code indicia scanned;

a second translating means for converting digital data signals from said scanning means into DTMF-encoded transfer signals for transmitting to the first translating means of said base station;

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a sound receiving means for receiving sounds and converting said sounds into electronic sound signals; and  
a sound generating means for generating audible sounds from electronic sound signals.

2. (Previously Presented) The system of claim 1 wherein said portable station additionally comprises a portable interface device for linking the components of said portable station, said interface device comprising:

a first interface means interfaced to the second transceiver means and the second translating means of said portable station;  
a second interface means interfaced to the sound receiving means and the sound generating means of said portable station;  
a third interface means interfaced to the scanning means and the second translating means of said portable station;  
a detection means connected to said first interface means for detecting DTMF-encoded signals received by said first interface means from said second transceiver means; and  
an interrupting means connected to said first interface means for preventing DTMF-encoded signals from being transferred to said sound generating means connected to said second interface means, said interrupting means being triggered by said detection means upon detection of DTMF-encoded signals.

3. (Previously Presented) The system of claim 1 wherein said first and second transceiver means comprise a wireless in-building communication apparatus.

4. (Previously Presented) The system of claim 1 wherein said scanning means comprises an optical scanner for optically scanning identification bar codes on products.

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5. (Previously Presented) The system of claim 1 wherein said second translating means produces said DTMF-encoded transfer signals comprised of tones representing numeric and alphabetic components.

6. (Previously Presented) The system of claim 1 wherein said sound receiving means comprises a microphone positionable adjacent to the mouth of a person.

7. (Previously Presented) The system of claim 1 wherein said sound generating means comprises a speaker positionable adjacent to an ear of a person.

8. (Previously Presented) The system of claim 1 additionally comprising an input means for entering information for transfer to said base station, said input means generating DTMF-encoded transfer signals and transmitting said signals to said second transceiver means.

9. (Previously Presented) The system of claim 1 wherein said input means comprises a numerical keypad incorporated with said scanning means.

10. (Previously Presented) The system of claim 1 additionally comprising a power source comprising a rechargeable battery.

12. (Previously Presented) The system of claim 1 additionally comprising a headset wearable on the head of a user, said headset including said sound receiving means and said sound generating means of said portable station.

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13. (Currently Amended) A portable station for interactive transfer of inventory information with a remotely-located base station having a first transceiver means, said portable station comprising:

a second transceiver means for wirelessly transmitting signals to and

receiving signals from the first transceiver means of a base station, scanning means for scanning bar code indicia on a product and producing digital data signals ~~based upon~~ representative of the bar code indicia scanned by said scanning means,

a sound receiving means for receiving sounds and converting said sounds into electronic sound signals,

a sound generating means for generating audible sounds from electronic sound signals, and

a portable interface device comprising:

a first interface means for interfacing to the second transceiver means;

a second interface means for interfacing to the sound receiving means and the sound generating means;

a third interface means for interfacing to the scanning means; and

a translating means in communication with said first interface means and said third interfacing means ~~for converting digital data signals received from the scanning means interfaced to~~ translating signals received by said first interface means and said third interface means [[[.]]] ;

wherein said translating means ~~being adapted to convert~~ translates said digital data signals received from said scanning means via said third interface means into DTMF-encoded transfer signals and ~~transmitting~~ transmits said transfer signals to the first interface means for being wirelessly transferred to the first transceiver means of the base station by said second transceiver means[[[.]]]

;

wherein said translating means ~~converting~~ translates DTMF-encoded

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transfer signals received by wireless transmission from said first transceiver means to said second transceiver means and passed to said first interface means, said translating means ~~being adapted to convert~~ translating said DTMF-encoded transfer signals into digital data signals for transfer to said scanning means via said third interface means.

14. (Previously Presented) The portable station of claim 13 additionally comprising a detection means connected to said first interface means for detecting DTMF-encoded signals received by said first interface means from said second transceiver means.

15. (Previously Presented) The portable station of claim 14 additionally comprising an interrupting means connected to said first interface means for preventing DTMF-encoded signals from being transferred to said sound generating means connected to said second interface means, said interrupting means being triggered by said detection means upon detection of DTMF-encoded signals.

16. through 25. (Cancelled)

26. (Previously Presented) A method of merchandise ordering and order fulfillment, said method comprising:  
providing an order processing system comprising a central station interfaced to a telephone communication network so as be accessible to customers by telephone for creation of a merchandise order, said system further comprising a store station linked to said central station for receiving said merchandise order from said central station, said store station including a portable station movable by a user about a product storage space;  
identifying a customer account based upon a customer identification

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transmitted to the central station by a customer;  
selecting the merchandise order transfer characteristics for effecting the transfer to the customer of the product items of the merchandise order;  
assembling a customer order for fulfillment, including the steps of requesting identification of product items to be added to the product order and the quantity of each identified product item; and  
fulfilling the merchandise order from said product storage space of a store, including the steps of:  
    compiling a listing of the product items of one or more merchandise orders to be assembled in said product storage space,  
    identifying the product locations in said product storage space of each of the product items on said listing of product items,  
    determining a merchandise order fulfillment path through said product storage space, said order fulfillment path comprising a sequence of person movement instructions between the product locations of product items on said listing of product items, and  
    transmitting one of said person movement instructions and a product item identity to said portable station in said product storage space for permitting a user of said portable station to locate a product item in said product storage space.

27. (Previously Presented) A system for interactive transfer of inventory information in a product storage space, said product storage space having products arranged in at least two product rows with an aisle located between adjacent product rows, whereby one product row is located on the left side and another product row is located on the right

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side of a person moving down the length of an aisle, each said product row having a plurality of vertically spaced product shelves extending along the length of the row, the shelves of each aisle side having a number of product groupings thereon, each aisle being assigned an aisle value and each side of said aisle being assigned an aisle side value, and each product grouping being assigned a product grouping value, each product stored in said product storage space having a product location representable by an aisle location value, an aisle side location value, and a product grouping location value, said product storage space comprising the interior of a retail grocery store, said system comprising:

a directing station, a base station and a portable station;

a first transceiver means in said base station and a second transceiver means in said portable station for wirelessly transmitting signals therebetween, said signal transmission between said first and second transceiver means including DTMF-encoded data signals and DTMF-encoded command signals and spoken command signals, said first and second transceiver means comprising a wireless telephone apparatus;

said directing station comprising

database means for storing product-related information and customer-related information, said product-related information comprising product identification information including an identification number with a Universal Product Code, product inventory information including the number of product items available in said product storage space and in auxiliary storage spaces, product pricing information including the price of products located in said product storage space, product location information including an aisle location value, an aisle side location value and a shelf location value for at least one product in at least one



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product storage space; said customer-related information comprising customer account information and customer order fulfillment information including a customer order product list and product substitution information;

directing means for determining an order fulfillment path through said product storage space based upon order fulfillment information and product location information stored in said database means for said product storage space, said order fulfillment path including a sequence of person movement instructions for directing person movements between product storage locations in said product storage space for permitting an efficient assembly of products to fulfill a customer order, said directing means passing said person movement instructions to the first transceiver means for transmission to said second transceiver means of said portable station;

a processing means for facilitating transfer of data between said first transceiver means, said database means, and said directing means;

said base station comprising

voice recognition means for identifying spoken command signals received from said portable station and converting said spoken command signals into predetermined computer command codes corresponding to the spoken command signals, wherein said voice recognition means transfers said predetermined computer command codes to said directing station;

voice generation means for converting predetermined computer command codes received from said directing means into corresponding electronic sound signals for producing

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sounds corresponding to spoken commands, wherein said voice generation means transfers said electronic sound signals to said portable station;

a first translating means for translating DTMF-encoded transfer signals from said portable station into predetermined computer command codes, wherein said first translating means transfers said predetermined computer command codes to said directing station;

a computer command code database accessible by said first translating means and said voice generation means for providing predetermined computer command codes; and said portable station being adapted for use remotely from said base station, said portable station being movable about a product storage space and being totable by a person, said portable station comprising:

scanning means for scanning bar code indicia on a product, said scanning means being adapted to produce digital data signals based upon the bar code indicia scanned, said scanning means comprising an optical scanner for optically scanning identification bar codes on products;

a second translating means for converting digital data signals from said scanning means into DTMF-encoded transfer signals for transmitting to the first translating means of said base station, said DTMF-encoded transfer signals being comprised of tones representing numeric and alphabetic components;

a sound receiving means for receiving sounds and converting said sounds into electronic sound signals, said sound receiving means being positionable adjacent to the mouth of a person

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toting said portable station, said sound receiving means comprising a microphone;

a sound generating means for generating audible sounds from electronic sound signals, said sound generating means being positionable adjacent to an ear of the person totting said portable station, said sound generating means comprising a speaker;

an input means for entering information for transfer to said base station, said input means generating DTMF-encoded signals, said input means comprising a numerical keypad; and

a power source, said power source comprising a rechargeable battery.

28. (Previously Presented) The method of claim 29 wherein the step of fulfilling the merchandise order additionally comprises transmitting one of said person movement instructions and the identification of the product item to said portable station in said product storage space for permitting a user of said portable station to locate a product item in said product storage space.

29. (Previously Presented) A method of merchandise ordering and order fulfillment, said method comprising:

providing an order processing system comprising a central station interfaced to a telephone communication network so as be accessible to customers by telephone for creation of a merchandise order, said system further comprising a store station linked to said central station for receiving said merchandise order from said central station, said store station including a portable station movable by a user about a product storage space;

assembling a customer order for fulfillment, including the step of

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requesting identification of product items to be added to the product order and the quantity of each identified product item; and fulfilling the merchandise order from the product storage space, including the steps of:

compiling a listing of the product items of one or more merchandise orders to be assembled in the product storage space, and identifying the product locations in the product storage space of each of the product items on said listing of product items; wherein the step of fulfilling the merchandise order additionally comprises determining a merchandise order fulfillment path through said product storage space, said order fulfillment path comprising a sequence of person movement instructions between the product locations of product items on said listing of merchandise items.

30. (Previously Presented) A method of merchandise ordering and order fulfillment, said method comprising:

providing an order processing system comprising a central station interfaced to a telephone communication network so as be accessible to customers by telephone for creation of a merchandise order, said system further comprising a store station linked to said central station for receiving said merchandise order from said central station, said store station including a portable station movable by a user about a product storage space;

assembling a customer order for fulfillment, including the step of requesting identification of product items to be added to the product order and the quantity of each identified product item; and fulfilling the merchandise order from the product storage space, including the steps of:

compiling a listing of the product items of one or more merchandise orders to be assembled in the product storage space, and

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identifying the product locations in the product storage space of each of the product items on said listing of product items;  
wherein the step of fulfilling the merchandise order additionally comprises transmitting one of said person movement instructions and a product item identity to said portable station in said product storage space for permitting a user of said portable station to locate a product item in said product storage space; and determining a merchandise order fulfillment path through said product storage space, said order fulfillment path comprising a sequence of person movement instructions between the product locations of product items on said listing of merchandise items.

31. (Previously Presented) A system for interactive transfer of inventory information in a product storage space, said system comprising: a directing station, a base station and a portable station;  
a first transceiver means in said base station and a second transceiver means in said portable station for wirelessly transmitting signals therebetween;

said directing station comprising:

database means for storing product-related information and customer-related information, said database means including order fulfillment information and product location information;

directing means for determining an order fulfillment path through said product storage space based upon order fulfillment information and product location information stored in said database means for a product storage space, said order fulfillment path including a sequence of person movement instructions for directing person movements between product storage locations in said product storage space for permitting an efficient assembly of products to fulfill a customer order, said directing means passing said person

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movement instructions to the first transceiver means for transmission to said second transceiver means of said portable station;

said base station comprising:

voice recognition means for identifying spoken command signals received from said portable station and converting said spoken command signals into predetermined computer command codes corresponding to the spoken command signals;

voice generation means for converting predetermined computer command codes received from said directing means into corresponding electronic sound signals for producing sounds corresponding to spoken commands; and

said portable station being adapted for use remotely from said base station, said portable station being movable about a product storage space, said portable station comprising:

scanning means for scanning bar code indicia on a product, said scanning means being adapted to produce digital data signals based upon the bar code indicia scanned;

a sound receiving means for receiving sounds and converting said sounds into electronic sound signals; and

a sound generating means for generating audible sounds from electronic sound signals.

32. (Previously Presented) A directing system for interactive transfer of inventory information in a product storage space, said directing system comprising:

a directing station; and

a portable station movable with respect to the directing station about the product storage space;

a first transceiver and a second transceiver adapted for wirelessly

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transmitting signals therebetween, the first transceiver being associated with the directing station and the second transceiver being associated with the portable station;

said directing station comprising:

database means for storing order fulfillment information and product location information regarding product location in the product storage space;

directing means for determining an order fulfillment path through said product storage space based upon order fulfillment information and product location information stored in said database means for the product storage space, said order fulfillment path including a sequence of person movement instructions for directing person movements between product storage locations in said product storage space for permitting an efficient assembly of products to fulfill a customer order, said directing means passing said person movement instructions to said first transceiver for transmission to said second transceiver of said portable station;

said portable station comprising:

a scanning device for scanning bar code indicia on a product, said scanning device being adapted to produce digital data signals based upon the bar code indicia scanned;

a sound receiver for receiving sounds and converting said sounds into electronic sound signals; and

a sound generator for generating audible sounds from electronic sound signals.

33. (Previously Presented) The system of claim 32 wherein wireless signal transmissions between said first and second transceivers include DTMF-encoded data signals and DTMF-encoded command signals and spoken command signals.

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34. (Previously Presented) The system of claim 32 wherein said portable station additionally comprises a portable interface device for linking the components of said portable station, said interface device comprising:

a first interface interfaced to the second transceiver of said portable station;

a second interface interfaced to the sound receiver and the sound generator of said portable station;

a third interface interfaced to the scanner device of said portable station;

a detector connected to said first interface for detecting DTMF-encoded signals received by said first interface from said second transceiver; and

an interrupter connected to said first interface for preventing DTMF-encoded signals from being transferred to said sound generator connected to said second interface, said interrupter being triggered by said detector upon detection of DTMF-encoded signals.

35. (Previously Presented) The system of claim 32 wherein said first and second transceivers comprise a wireless in-building communication apparatus.

36. (Previously Presented) The system of claim 32 wherein said portable station includes a translator for converting digital data signals from said scanner device into DTMF-encoded transfer signals for transmitting to said first transceiver, said DTMF-encoded transfer signals comprising tones representing numeric and alphabetic data components.

37. (Previously Presented) The system of claim 32 additionally comprising an input means for inputting information, said input means



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generating DTMF-encoded transfer signals and transmitting said signals to said second transceiver for transmission to said first transceiver.

38. (Previously Presented) The system of claim 32 wherein said portable station is adapted to be totable by a person.

39. (Previously Presented) The system of claim 32 additionally comprising a base station including:

voice recognition means for identifying spoken command signals received by said first transceiver from said portable station and converting said spoken command signals into predetermined computer command codes corresponding to the spoken command signals, wherein said voice recognition means transfers said predetermined computer command codes to said directing station;

voice generation means for converting predetermined computer command codes received from said directing means into corresponding electronic sound signals for producing sounds corresponding to spoken commands, wherein said voice generation means transfers said electronic sound signals to said portable station;

a first translator for translating DTMF-encoded transfer signals from said portable station into predetermined computer command codes, wherein said first translator transfers said predetermined computer command codes to said directing station; and

a computer command code database accessible by said first translator and said voice generation means for providing predetermined computer command codes.

40. through 53. (Cancelled)

54. (Previously Presented) A method of merchandise ordering and order fulfillment, said method comprising:

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providing an order processing system comprising a central station  
interfaced to a telephone communication network so as be accessible  
to customers by telephone for creation of a merchandise order; and  
assembling a customer order for fulfillment, including the steps of:  
requesting from a customer a product identification of a product  
item and a quantity of the product item to be added to the  
merchandise order;  
providing the customer with an option to respond, according to the  
customer's preference, with a requested product identification  
in spoken words and an option to respond with a requested  
product identification in DTMF-encoded signals;  
receiving the requested product identification and a requested  
product quantity from a customer;  
confirming the identity and quantity of the product item to be  
included in the merchandise order; and  
comparing the requested product quantity of a product item in a  
merchandise order to a predetermined limit quantity  
established for said product item and, if the requested quantity  
exceeds said predetermined limit quantity, reciting the  
requested product quantity of the product item to the customer  
and requesting confirmation from the customer of the  
requested product quantity of the product item.